Raindrop influence on the soil surface

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Soil erosion through various water processes is worldwide problem. This research is focused on the raindrop impact on soil surface which is generally considered as the initial stage of the erosion process. Splash erosion monitoring was conducted across three experimental sites: Petzenkirchen and Mistlebach (Austria) and Prague (Czech Republic). At each site the rainfall characteristics (intensity and kinetic energy) were measured by rain gauges and disdrometers and the impacts on soils (soil loss, soil surface consolidation, changes in soil surface roughness) were evaluated. Several disturbed soil samples with area of 78.5 cm² were placed into splashcups prior to each event. The splash cup collects the soil particles that are splashed out of the sample area when a raindrop hits the soil surface. The collected sediment suspension is processed in laboratory after each event to determine the lost soil mass. Ground photogrammetry was utilized to determine the surface consolidation of a sample caused by given rainfall event. Results for more then 500 soil samples are included in this study. Relationships between kinetic energy, rainfall intensity, soil loss and consolidation were evaluated.

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